REMARKS/ARGUMENTS

Applicant appreciates the consideration shown by the Office, as evidenced by the Office Action, mailed on 3 August 2005. In that Office Action, the Examiner rejected claims 13-14, 18, 33-34, 38, 49, and 54-60, objected to claims 50-53, and allowed claims 1-12, 15-17, 19-32, 35-37, and 39-48. Claims 1-60 remain under consideration in the present application. Applicant respectfully requests reconsideration of the application by the Examiner in light of the following remarks.

Applicant respectfully traverses the rejection of claims 13-14, 18, 33-34, 38, 49, and 54-60 under 35 USC 102(a) over Gannaway (GB 2,376,585) or Bombardier (WO 03/027706). Neither Gannaway nor Bombardier teaches, suggests, or discloses Applicant's claimed invention as described in independent claims 13, 33, 34, 38 and 49. Applicants respectfully submit that the applied references do not teach, suggest, or disclose the amended claims 13, 33, 34, 38 and 49 recitations of (with emphasis added):

> 13. A method for determining a position of a moving platform, the method comprising:
> transmitting a carrier signal from one of the moving platform and a stationary platform;
> receiving a received signal at the other of the moving and stationary platforms;
> **deriving a frequency shift between the carrier signal and the received signal; and**
> **calculating the apparent closing velocity using the frequency shift and a frequency of the carrier signal**; wherein the stationary platform comprises a transmitter coupled to a railway track.
>
> 18. A method for determining a position of a moving platform, the method comprising:
> transmitting a carrier signal from one of the moving platform and a stationary platform;
> receiving a received signal at the other of the moving and stationary platforms;
> **deriving a frequency shift between the carrier signal and the received signal; and**
> **calculating the apparent closing velocity using the frequency shift and a frequency of the carrier signal**; wherein the moving platform is a locomotive.
>
> 33. A system for determining a position of a moving platform, the system comprising:
> a transmitter configured for transmitting a carrier signal from one of the moving platform and a stationary platform;
> a receiver system configured for receiving a received signal from the other of the moving and stationary platforms, the receiver system further comprising:
> a processor configured for:
> (i) **deriving a frequency shift between the carrier signal and the received signal;**
> (ii) **calculating the apparent closing velocity angle using the frequency shift**

and a frequency of the carrier signal, wherein the stationary platform comprises a transmitter coupled to a railway track.

38. A system for determining a position of a moving platform, the system comprising:

a transmitter configured for transmitting a carrier signal from one of the moving platform and a stationary platform;

a receiver system configured for receiving a received signal from the other of the moving and stationary platforms, the receiver system further comprising:

a processor configured for:

(i) deriving a frequency shift between the carrier signal and the received signal;

(ii) calculating the apparent closing velocity angle using the frequency shift and a frequency of the carrier signal, wherein the moving platform comprises a locomotive.

49. (Original) A system for determining a position of a moving platform, the system comprising:

a transmitter configured for transmitting a modulated carrier signal;

a receiver system configured for demodulating a received carrier signal, the receiver system further comprising a processor configured for

deriving a frequency shift between the carrier signal and the received signal,

calculating an apparent closing velocity using the frequency shift of the received signal relative to a center frequency of the transmitted carrier signal, and

estimating the position of the moving platform by monitoring the apparent closing velocity over a period of time.

Gannaway appears to be primarily directed to sports and racing (page 4, last paragraph) and appears to describe an approach for measuring speed and position of a moving object **by observing the Doppler signal from a passing object** (see abstract – "change in shift as the object passes the receiver"). The Doppler signal is observed by one or more receivers located on a line parallel to the direction of motion of the object. A change in the polarity (i.e. a zero crossing) in the Doppler signal is determined which in turn indicates the object has moved perpendicular to the receiver. The time of this zero crossing is recorded as the time when the object passed.

Bombardier appears to describe a system specifically focused on detecting locations of trains within specific blocks of track. Bombardier uses radio receivers/transmitters lying along the route of the vehicle **to detect a train passing** a specific location. When such an event occurs, the Doppler signal changes signs and exhibits a zero crossing (see translation page 3, lines 1-13). This method is used to locate a train within predetermined sections of track.

Nowhere does Gannaway or Bombardier teach, suggest, or disclose deriving a frequency shift between the carrier signal and the received signal and *calculating the apparent closing velocity using the frequency shift and a frequency of the carrier signal.* In contrast, Gannaway and

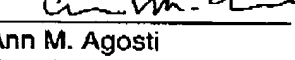
Bombardier, appear to rely on either (1) motion past a site to locate the moving platform or (2) detection of a zero crossing or change of Doppler amplitude to detect passage of the moving object by the specific site. Systems that look for a zero crossing (such as Gannaway and Bombardier) are, in effect, looking for the absence of a Doppler shift. When an object is moving with a zero radial velocity component (i.e. moving perpendicular to the observer) then there is no Doppler signal. As such, the prior art is looking to detect a sudden absence of Doppler shift, rather than calculating specific value of Doppler shift to then estimate the velocity of the moving target based on that shift. Additionally, Gannaway page 3, middle paragraph, emphasizes that it is not necessary to know the frequency of the transmitted signal.

Therefore claim 13, claim 14 which depends therefrom, claim 18, claim 33, claim 34 which depends therefrom, claim 38, claim 49, and claims 54-60 which depend therefrom are patentable over of the Gannaway and Bombardier references. Withdrawal of the rejections is respectfully requested, and allowance of the claims is respectfully solicited.

Claims 50-53 were objected to as being dependent upon a rejected base claim. The Examiner indicated that claims 50-53 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Because Applicant believes the base claim 49 to be in condition for allowance, Applicant has not amended these claims.

In view of the foregoing, Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,

By 

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